REMARKS

I. Introduction

In response to the pending Office Action, Applicants respectfully traverse the pending rejection for the reasons set forth below.

Applicants again note with appreciation the indication of allowable subject matter being recited by claims 3 and 9.

For the reasons set forth below, Applicants respectfully submit that all pending claims are patentable over the cited prior art references.

II. The Rejection Of The Claims Under 35 U.S.C. § 103

Claims 1, 2, 4-6 and 8 were rejected under 35 U.S.C. § 103 as being unpatentable over USP No. 6,010,769 to Sasaoka. For the following reasons, Applicants respectfully submit that the pending claims are patentable over Sasaoka.

As recited by claim 1, and explained in the Applicants' previous response, the present invention relates to a circuit substrate having multiple wiring layers separated by an insulating layer, which have vias formed therein, and which are filled with conductive paste (i.e., conductor) in order to couple the wiring layers to one another. ***Importantly, the bonding strength between the wiring layer and the conductor is greater than the bonding strength between the wiring layer and the insulating layer***. As a result, as explained in detail in the specification (e.g., *see*, pages 16 and 17), because of the foregoing relationship in bonding strength, when stress is caused by the difference in thermal expansion coefficients between the insulating layer and the conductive paste, the interface between the wiring layer and the

insulating layer serves to absorb the stress, thereby reducing the possibility of a disconnect between the conductive paste and the wiring layer.

Turning to the cited prior art and the pending rejection, it is admitted in the pending rejection that Sasaoka fails to disclose or suggest the limitation regarding the bonding strength between the wiring layer and the conductive paste being greater than the bonding strength between the wiring layer and the insulating layer. It is now asserted that because Sasaoka discloses the same materials, the resulting structure necessarily has the same results. Based on the teachings of Sasaoka, such a conclusion is clearly incorrect.

First, and most importantly, it is noted that the Sasaoka discloses a plurality of **possible** materials for wiring layer, the conductive paste and the insulating layer (*see*, col. 15, lines 16-47, and col. 16, lines 37-57). However, not every combination of the disclosed materials satisfy the foregoing limitation set forth in claim 1 regarding the respective bonding strengths. As such, practicing the device of Sasaoka does not necessarily result in practicing the present invention.

For example, referring to Fig. 5 of Sasaoka and the corresponding example, Sasaoka discloses a phenol resin-based conductive paste containing silver as a conductive filler which is utilized for the conductive pillar 14 (*see*, col. 21, lines 25-27), and an epoxy-based resin sheet of 70um which is utilized for the second insulating layer 11b (*see*, col. 21, lines 41-47). As a result of this structure, the bonding strength between the outermost via land 13a and the insulating layer 11b is greater than the bonding strength between the via land 13a and the conductive pillar 14. This is due to the fact that the insulating layer 11b is an epoxy-based resin, and the conductive pillar is a combination of a silver filler and phenol resin. As the conductive pillar 14 contains silver filler therein, which does not bond to the via land 13a, the bonding strength

between the conductive pillar and the via land 13a is less than that between the via land 13a and the insulating layer 11b, which includes only resin.

Furthermore, according to Sasaoka, an epoxy-based resin generally suitable as an adhesive is utilized for the insulating layer 11b, and a phenol resin generally used as an insulating agent is utilized for the conductive filler 14. As a result, in contrast to the present invention, the bonding strength between the insulating layer 11b and the via land 13a is greater than that between the via land 13a and the conductive pillar 14.

Thus, the conclusion set forth in the Office Action and on which the present rejection is based (i.e., that practicing Sasaoka necessarily results in the present invention) is incorrect. Indeed, the opposite is true in that practicing the disclosed examples of Sasaoka results in a device which fails to satisfy the claimed invention. Accordingly, there is no basis or reason to conclude that the present invention is obvious in view of Sasaoka.

It is well known that the fact that the prior art could be modified so as to result in the combination defined by the claims at bar would not have made the modification obvious unless the prior art suggests the desirability of the modification. ***In re Deminski***, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986).

Moreover, recognizing after the fact that such a modification would provide an improvement or advantage, without suggestion thereof by the prior art, rather than dictating a conclusion of obviousness, is an indication of improper application of hindsight considerations. Simplicity and hindsight are not proper criteria for resolving obviousness. ***In re Warner***, 379 F.2d 1011, 154, USPQ 173 (CCPA 1967).

For all of the foregoing reasons, it is respectfully submitted that the pending claims are patentable over Sasaoka and Graham, taken alone, or in combination with one another.

III. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, ***Hartness International Inc. v. Simplimatic Engineering Co.***, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 1 is patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also in condition for allowance.

IV. Request For Notice Of Allowance

Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication for which is respectfully solicited.

If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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